

WHAT IS CLAIMED IS:

1. An apparatus for examining a body part comprising:

 means or a mechanism for immobilizing and compressing the body part;

 means or a mechanism for providing an internal anatomical image of the body part; and

 means or a mechanism for detecting single gamma-rays emitted by a radiotracer infiltrated into the body party in an adjacent relationship with said means or mechanism for providing an internal anatomic image such that the body part remains in the same position during and between anatomic and radiotracer imaging.
2. An apparatus as described in Claim 1 wherein the detecting means or mechanism includes a detector module disposed on one side of the immobilizing means or mechanism, said detector module having at least one array of gamma ray sensitive material in communication with a position detector.
3. An apparatus as described in Claim 1 wherein the detecting means or mechanism includes a pair of detector modules disposed one on each side of the immobilizing means or mechanism, each detector module having at least one array of gamma-ray sensitive material in communication with a position detector.
4. An apparatus as described in Claim 1 wherein the means or mechanism for providing an anatomical image includes an x-ray source and x-ray recording medium.
5. An apparatus for examining a body part comprising:

means or a mechanism for immobilizing and compressing the body part; and

means or a mechanism for detecting single gamma-rays emitted by a radiotracer infiltrated into the body part.

6. An apparatus as described in Claim 5 wherein the detecting means or mechanism includes a detector module disposed on one side of the immobilizing means or mechanism, said detector module having at least one array of gamma ray sensitive material in communication with a position detector.

7. An apparatus as described in Claim 5 wherein the detecting means or mechanism includes a pair of detector modules disposed one on each side of the immobilizing means or mechanism, each detector module having at least one array of gamma-ray sensitive material in communication with a position detector.

8. An apparatus as described in Claim 5 including means or a mechanism for providing an internal anatomical image of the body part.

9. An apparatus for examining a body part comprising:

means or a mechanism for immobilizing and compressing the body part;

means or a mechanism for providing a stereotactic internal anatomical image of the body part; and

means or a mechanism for providing a stereotactic physiological image of the body part in an adjacent relationship with said means or mechanism for providing an internal anatomic

image such that the body part remains in the same position during and between anatomic and radiotracer imaging.

10. An apparatus as described in Claim 9 wherein the means or mechanism for obtaining a stereotactic physiological image includes a pair of detector modules disposed one on each side of the immobilizing means or mechanism.

11. An apparatus as described in Claim 10 wherein the detector modules can be positioned to travel angularly about the body part to provide projection images of the body part from at least two different viewing angles.

12. An apparatus as described in Claim 10 wherein detector modules are stationary with respect to the body part and obtain multiple projection views of the body part.

13. An apparatus for examining a body part comprising:

means or a mechanism for immobilizing and compressing the body part; and

means or a mechanism for providing a stereotactic physiological image of the body part.

14. An apparatus as described in Claim 13 wherein the means or mechanism for obtaining a stereotactic physiological image includes a pair of detector modules disposed one on each side of the immobilizing means or mechanism.

15. An apparatus as described in Claim 13 wherein the detector modules can be positioned to travel angularly about the

body part to provide projection images of the body part from at least two different viewing angles.

16. An apparatus as described in Claim 13 wherein detector modules are stationary with respect to the body part and obtain multiple projection views of the body part to form a stereotactic image.

17. A method for examining a body part comprising the steps of:

immobilizing the body part in a preferred position such that the body part is compressed; and

obtaining at least one physiological image of the body part.

18. A method as described in Claim 17 wherein the obtaining step includes the step of obtaining a stereotactic physiological image of the body part.

19. A method as described in Claim 18 wherein before the immobilizing step, there is the step of injecting the patient with a radiotracer which emits gamma rays and the step of obtaining a stereotactic physiological image includes the step of detecting gamma-rays with a pair of detector modules disposed one on each side of immobilizing means or mechanism.

20. A method as described in Claim 19 wherein before the step of obtaining a stereotactic physiological image, there is the step of obtaining a stereotactic internal anatomical image of the body part.

21. A method as described in Claim 17 wherein after the step of obtaining a stereotactic physiological image, there is the step of directing a biopsy needle or gun into the body part using the stereotactic physiological image for three-dimensional guidance.

22. A method as described in Claim 21 wherein after the step of obtaining a stereotactic image, there is the step of operating on the patient using the obtained stereotactic image for guidance and localization.

23. A method as described in Claim 17 including after the step of obtaining the image, there is the step of operating on the patient using the image for guidance, localization, and confirmation that any tumor of the body part has been removed completely.

24. A method as described in Claim 23 including after the operating step, there can be the step of obtaining at least one image of surgical specimens to identify the presence of and the borders of tumors.